

I CLAIM:

1. A surface acoustic wave arrangement comprising a piezoelectric substrate; a first interdigital transducer and a second interdigital transducer being arranged along an acoustic path on the piezoelectric substrate; said first interdigital transducer having fingers with absolute finger center distances and finger widths, one of the absolute finger center distances and a combination of the absolute finger center distances and finger widths decreasing in the transverse direction for the first interdigital transducer; means dividing the acoustic path in the transverse direction into two edge tracks and a center track arranged between the edge tracks, the fingers of the first interdigital transducer being constructed so that the radiation of the acoustic wave in the edge tracks being selected from a bidirectional excitation and an excitation in a predominant direction, said means modifying the center track, so that the radiation of the acoustic wave takes place as a radiation selected from a radiation in a direction opposite the predominant direction and a radiation with an opposite phase.

2. An arrangement according to claim 1, wherein the first interdigital transducer has fingers with one of the finger center distances and the combination of finger widths and the finger center distances for one of the center track, the edge tracks and combinations of an edge and center tracks varying in the longitudinal direction.

3. An arrangement according to claim 1, wherein one of the finger widths and the finger center distances in the center track of the first interdigital transducer are chosen so that the radiation of the acoustic wave takes place preferably in a direction opposite the predominant direction and wherein the electrode fingers in the center track of the first digital transducer and the second interdigital transducers in the longitudinal direction are offset relative to one another so that the acoustic waves excited in the center track and in the edge tracks run essentially with the opposite phase.

4. An arrangement according to claim 1, wherein the absolute finger center distance of the first interdigital transducer decreases monotonically in a transverse direction

either from track to track or within a track, which is selected from a center track and the edge tracks.

5. An arrangement according to claim 1, wherein the absolute finger center distance of the first interdigital transducer decreases stepwise in a transverse direction either from track to track or within a track, which is selected from a center track and the edge tracks.

6. An arrangement according to claim 1, wherein the electrode fingers taper in the transverse direction, so that the ratio of the finger center distances and the finger widths in the transverse direction remains constant.

7. An arrangement according to claim 1, wherein the second interdigital transducer has fingers with a finger center distance and finger width, and one of the finger center distances and a combination of the finger center distances and finger widths decrease in the transverse direction.

8. An arrangement according to claim 7, wherein the second interdigital transducer is formed with a center track essentially like the first interdigital transducer.

9. An arrangement according to claim 1, which includes two acoustic reflectors disposed on the surface of the piezoelectric substrate, said reflectors being arranged to limit the acoustic path.

10. An arrangement according to claim 1, wherein the electrode fingers of one of the first and second interdigital transducers in the center track form a single phase unidirectional transducer cell in the longitudinal direction having a length which is equal to an integral multiple of the wavelength λ .

11. An arrangement according to claim 10, in which electrode fingers of one of the first and second interdigital transducers having within a single phase unidirectional transducer cell to some extent have one of different layer thicknesses, different finger widths and different finger center distances and combinations thereof.

12. An arrangement according to claim 10, wherein one of the first and second interdigital transducers has pairs of adjacently arranged electrode fingers being connected to the same current rail, the electrode fingers of the pair having, in the longitudinal direction in the center track, different widths, so that the radiation of the acoustic wave takes place preferably in the direction opposite the predominant direction.

13. An arrangement according to claim 1, which includes reflectors being disposed on the substrate to provide multiple bends in the acoustic path, each reflector including reflector strips, the period of the reflector strips corresponding essentially to the center frequency of the arrangement, said means for forming a center track and edge tracks having the reflectors being divided in a direction along the reflector strips into two reflector edge tracks and a reflector center track arranged between the reflector edge tracks, the first interdigital transducer having one of the finger center transducer distances and combinations of the finger center distance and finger width chosen so that the radiation of the acoustic wave is selected from bidirectional radiation and radiation following the acoustic path preferably in the predominant direction, the reflector strips having a structure selected from being split in the reflector center track and reflector strips in the reflector center track being offset in the longitudinal direction with respect to the strips in the reflector edge tracks, the acoustic waves diverted by the reflector center track and the reflector edge tracks of a last reflector in the predominant direction going essentially with opposite phases.

14. An arrangement according to claim 1, which includes at least one reflector for bending the acoustic path, the means dividing the acoustic path into two edge tracks and a center track being a structure selected from the finger structure of the first interdigital transducer and the structure of the at least one reflector.